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II. AMENDMENTS TO THE SPECIFICATION

--- The location of each paragraph to be deleted or replaced, and where the new paragraph or section is to be added, is set forth unambiguously below. A marked-up version of any replacement paragraph is provided. The text of new paragraphs or sections is not underlined. Any amendment (if any) to the abstract is treated as any other amendment to the specification.

- *THE SPECIFICATION OF THE PATENT IS HEREBY AMENDED AS SET FORTH BELOW:*

  - Please replace abstract with the following replacement abstract:

The invention herein includes a method for combining immuno staining and FISH using covalently bound small molecule tags. Among embodiments included are methods of tagging immuno and FISH probes for treatment of biologic material. Embodiments comprise directing the fluorescently labeled immuno probe(s) to non-chromosomic portions of a biologic sample and directing labeled FISH probe(s) to chromosomic portions of the biologic sample for further identification of subcellular components. Embodiments also comprise the automatic connection of information regarding the sample to image analysis; to subcellular component identification and enumeration in order to affect biomedical decisions.

  - Please add Brief description of the drawings as follows:

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. 1 is a flow chart summarizing the method of one aspect of the invention.

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  - Please replace Paragraph [00~~14~~12] with:

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[00~~14~~] A method comprising in order: (a) treating a biological sample having chromosomal material therein with one or more antibodies having an affinity for at least one non-chromosomal portion of such biological sample the antibody(ies) having an introduced non-detectable reactive conjugate thereon; (b) treating said biological sample with a fluorescently-tagged chromosome probe having a high degree of sequence similarity to one or more portions of said chromosomal material; and (c) treating said biological sample with a detectable tag reactive with said non-detectable reactive conjugate on said antibody(ies) but not with said chromosomal material or non-chromosomal portions of said biological sample. The non-detectable reactive conjugate may be a biontinylated tyramide, and the detectable tag reactive therewith may be streptavidin tagged with a fluorophore.

Please find below a mark-up version indicating changes with strikethrough or double square bracket and underline:

[0014] (Mark Up) A method comprising in order: (a) treating a biological sample having chromosomal material therein with one or more antibodies having an affinity for at least one non-chromosomal portion of such biological sample the antibody(ies) having an introduced non-detectable reactive conjugate thereon; (b) treating said biological sample with a fluorescently-tagged chromosome probe having a high degree of sequence similarity to one or more portions of said chromosomal material; and (c) treating said biological sample with a detectable tag reactive with said non-detectable reactive conjugate on said antibody(ies) but not with said chromosomal material or ~~none chromosomal~~ non-chromosomal portions of said biological sample. The non-detectable reactive conjugate may be a biontinylated tyramide, and the detectable tag reactive therewith may be streptavidin tagged with a fluorophore.

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- Please replace Paragraph **[001~~5~~]** with:

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[00~~15~~] Alternatively, there is provide a method comprising in order: (a) treating a biological sample having chromosomic material therein with one or more antibodies having an affinity for at least one non-chromosomal portion of such biological sample, the antibody (ies) having introduced a detectable reactive conjugate thereon; (b) treating said biological sample with a fluorescently-tagged chromosome probe having a high degree of sequence similarity to one or more portions of said chromosomic material; and (c) treating said biological sample with a non-detectable or detectable tag reactive with said detectable reactive conjugate on said antibody(ies) but not with said chromosomic material or non-chromosomal portions of said biological sample.

Please find below a mark-up version indicating changes with strikethrough or double square bracket and underline:

[0015] (Mark Up) Alternatively, there is provide a method comprising in order: (a) treating a biological sample having chromosomic material therein with one or more antibodies having an affinity for at least one non-chromosomal portion of such biological sample, the antibody (ies) having [[an]] introduced a detectable reactive conjugate thereon; (b) treating said biological sample with a fluorescently-tagged chromosome probe having a high degree of sequence similarity to one or more portions of said chromosomic material; and (c) treating said biological sample with a non-detectable or detectable tag reactive with said detectable reactive conjugate on said antibody(ies) but not with said chromosomic material or non-chromosomal portions of said biological sample.

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- Please replace Paragraph **[00~~19~~]** with:

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[00~~19~~17] Further disclosed is a process for identifying and enumerating fluorescent in situ hybridization ("FISH") signals produced with respect to nuclear components hybridized in situ with fluorescent markers: acquiring **200** using an epi-fluorescence microscope a plurality of images at different focal planes in each fluorescence channel corresponding to the hybridized FISH markers; selecting **300** a best focused image from said plurality of images for each nucleus; acquiring **400** using said epi-fluorescence microscope a plurality of images above and below the focal plane of said best focused image for each nucleus, selecting **500** for each nucleus the one focal plane above and the one focal plane below the focal plane of said best focused image in which the image is best focused, combining **600** said images from the one focal plane above and below said best focused image with said best focused image each nucleus to produce a combined image for said nucleus; analyzing **700** the combined image of each nucleus to separate background pixels from signal pixels, and to determine areas of produced signals corresponding to pre-set size and shape criteria corresponding to a non-artifactual target.

Please find below a mark-up version indicating changes with strikethrough or double square bracket and underline:

[0019] (Mark Up) Further disclosed is a process for identifying and enumerating fluorescent in situ hybridization ("FISH") signals produced with respect to nuclear components hybridized in situ with fluorescent markers: acquiring **200** using an epi-fluorescence microscope a plurality of images at different focal planes in each fluorescence channel corresponding to the hybridized FISH markers; selecting **300** a best focused image ~~horn~~ from said plurality of images for each nucleus; acquiring **400** using said epi-fluorescence microscope a plurality of images above and below the focal plane of said best focused image for each nucleus, selecting **500** for each nucleus the one focal plane above and the one focal plane below the focal plane of said best focused image in which the image is best focused, combining **600** said

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images from the one focal plane above and below said best focused image with said best focused image each nucleus to produce a combined image for said nucleus; analyzing 700 the combined image of each nucleus to separate background pixels from signal pixels, and to determine areas of produced signals corresponding to pre-set size and shape criteria corresponding to a non-artifactual target

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- Please replace Paragraph **[00~~22~~]** 20 with:

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20 **[00~~22~~]** In one embodiment, there is disclosed a process of identifying and enumerating fluorescent in situ hybridization ("FISH") signals produced with respect to nuclear components hybridized in situ with fluorescent markers, the process comprising the steps of (a) **200** acquiring using an epi-fluorescence microscope a plurality of images at different focal planes in each fluorescence channel corresponding to the hybridized FISH markers; (b) **300** selecting a best focused image from said plurality of images for each nucleus; (c) **400** acquiring using said epi-fluorescence microscope a plurality of images above and below the focal plane of said best focused image for each nucleus; (d) **500** selecting for each nucleus the one focal plane above and the one focal plane below the focal plane of said best focused image in which the image is best focused; (e) **600** combining said images from the one focal plane above and below said best focused image with said best focused image to produce a combined image for said nucleus, (f) **700** analyzing the combined image for each nucleus to separate background pixels from signal pixels, and to determine areas of produced signals corresponding to a pre-set size and shape criteria corresponding to a non-artifactual target.

Please find below a mark-up version indicating changes with strikethrough or double square bracket and underline:

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[0022] (Mark Up) In one embodiment, there is disclosed a process of identifying and enumerating fluorescent [[iii]]in situ hybridization ("FISH") signals produced with respect to nuclear components hybridized in situ with fluorescent markers, the process comprising the steps of (a) **200** acquiring using an epi-fluorescence microscope a plurality of images at different focal planes in each fluorescence channel corresponding to the hybridized FISH markers; (b) **300** selecting a best focused image from said plurality of images for each nucleus; (c) **400** acquiring using said epi-fluorescence microscope a plurality of images above and below the focal plane of said best focused image for each nucleus; (d) **500** selecting for each nucleus the one focal plane above and the one focal plane below the focal plane of said best focused image in which the image is best focused; (e) **600** combining said images from the one focal plane above and below said best focused image with said best focused image to produce a combined image for said nucleus, (f) **700** analyzing the combined image for each nucleus to separate background pixels from signal pixels, and to determine areas of produced signals corresponding to a presser pre-set size and shape criteria corresponding to a non-artifactual target.

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- Please replace Paragraph **[002~~6~~]** 24 with:

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[00~~26~~] 24 For example, a microscope slide having a poly-L-lysine coating thereon along at least an area wherein the sample is to be deposited on the slide may be utilized. A poly-L-lysine coating aids in cell, cellular material, and other biological material adhesion to the slide. Application of the biological material to the slide portion coated with poly-L-lysine may be aided by use of a walled chamber with at least a partially opened top and bottom portion, into which the material to be deposited on the slide may be placed. The walled chamber may be connected to a base which is operatively configured for holding a microscope slide which may be coded, and intercalated therewith (e.g. in a tongue and groove configuration). The portion of the microscope slide onto which the sample is placed can be positioned

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under the wall structure in a manner such that a defined area of coverage is set. The walled chamber may be pinioned at a fixed point to allow the walled chamber to be pivoted up when the microscope slide is placed into or removed from the base by pushing or pulling on the slide.

Please find below a mark-up version indicating changes with strikethrough or double square bracket and underline:

[0026] (Mark Up) For example, a microscope slide having a poly-L-lysine coating thereon along at least an area wherein the sample is to be deposited on the slide may be utilized. A poly-L-lysine coating aids in cell, cellular material, and other biological material adhesion to the slide. Application of the biological material to the slide portion coated with poly-L-lysine may be aided by use of a walled chamber with at least a partially opened top and bottom portion, into which the material to be deposited on the slide may be placed. The walled chamber may be connected to a base which is operatively configured for holding a microscope slide which may be coded, and intercalated therewith (e.g. in a tongue and groove configuration). The portion of the microscope slide onto which the sample is placed [[cain]] can be positioned under the wall structure in a manner such that a defined area of coverage is set. The walled chamber may be pinioned at a fixed point to allow the walled chamber to be pivoted up when the microscope slide is placed into or removed from the base by pushing or pulling on the slide.

DB 10-8-09 Please replace Paragraph **[00~~28~~26]** with:

DB 10-8-09 **[00~~28~~26]** Identification and enumeration of fluorescent in situ hybridization ("FISH") signals produced with respect to nuclear components hybridized in situ with